

Opener Question(regular deposit)

Solve using both Formula and

TVM Solver

9. At the end of every 6 months, Marcia deposits \$100 in a savings account that pays 4%/a compounded semi-annually. She made the first deposit when her son was 6 months old, and she made the last deposit on her son's 21st birthday. The money remained in the account until her son turned 25, when Marcia gave it to him. How much did he receive?

$$A = R \frac{[(1+i)^n - 1]}{i}$$
$$A = P(1+i)^n$$

Jan 6-7:56 AM

TVM Advanced Calculator

Mode ☒ End ☐ Beginning

Present Value 0 PV

Payment -100 PMT

Future Value 6,486.22 FV

Annual Rate (%) 4 Annually Rate

Periods 42 Semiannually Periods

Compounding Semiannually

Reset

Marcia's son has \$6486.22 on his 21st birthday

May 30-8:37 AM

Mode ☒ End ☐ Beginning

Present Value 6,486.22 PV

Payment 0 PMT

Future Value 7,599.64 FV

Annual Rate (%) 4 Annually Rate

Periods 8 Semiannually Periods

Compounding Semiannually

Reset

Marcia's son has 7599.64 on his 25th birthday

May 30-8:42 AM

Opener Question(regular deposit)

Solve using both Formula and

TVM Solver

At the end of every 6 months, Marcia deposits \$100 in a savings account that pays 4%/a compounded semi-annually. She made the first deposit when her son was 6 months old, and she made the last deposit on her son's 21st birthday. The money remained in the account until her son turned 25, when Marcia gave it to him. How much did he receive?

$$A = R \frac{[(1+i)^n - 1]}{i}$$
$$A = ?$$
$$R = 100$$
$$i = 0.04/2 = 0.02$$
$$n = 2 \times 21 = 42$$
$$= 100 \frac{[(1+0.02)^{42} - 1]}{0.02}$$
$$= 100 \frac{[1.02^{42} - 1]}{0.02}$$
$$= 100 \frac{[2.2972 - 1]}{0.02}$$
$$= 100 \frac{[1.2972]}{0.02}$$
$$= 100 \times 64.86$$
$$A = 6486$$
$$P = 6486(1.02)^8$$
$$A = 6486(1.176)$$
$$= 7599.38$$

Jan 6-7:56 AM

Need to Know

- The TVM Solver can be used to investigate the effects of changing the conditions when borrowing or investing.
- ΣInt** is a financial function that may be used after entering information in the TVM Solver. **ΣInt** is used to calculate the total interest paid from a starting payment number to an ending payment number.

Jun 2-8:00 AM

6. Bernice will repay a \$30 000 loan with monthly payments. The term of the loan is 5 years. The interest rate is 7.25%/a compounded monthly.

a) What is the monthly payment for this loan?

b) What is the outstanding balance on the loan after each of the first 5 years?

c) What is the interest and principal that she has paid at the end of the 5-year term?

$$-597.58 \times 60$$
$$= 35854.80$$

Jun 2-8:02 AM

Mode ☒ End ☐ Beginning

Present Value 30,000 PV

Payment -597.58 PMT

Future Value 0 FV

Annual Rate (%) 7.25 Annually Rate

Periods 60 Monthly Periods

Compounding Monthly

Reset

Bernice's monthly payments are \$597.58.

$$597.58 \times 60 = 35914.80$$

She paid 5 914.80

May 30-8:58 AM

7. If \$1000 is deposited at the end of each year in an account that pays 13.5%/a compounded annually, about how many years will it take to accumulate to \$20 000?

10yrs 4months

Jun 2-8:03 AM

**TVM Advanced Calculator**

Mode ☒ End ☐ Beginning

Present Value 0 PV

Payment -1,000 PMT

Future Value 20,000 FV

Annual Rate (%) 13.5 Annually Rate

Periods 10.33 Annually Periods

Compounding Annually

Reset

It takes 10 years 4 months to accumulate \$20 000.

May 30-9:09 AM

8. Jack's life savings total \$320 000. He wants to use the money to buy an annuity earning interest at 10%/a compounded semi-annually so that he will receive equal semi-annual payments for 20 years. How much is each payment if the first is 6 months from the date of purchase?

Every 6 month

13 649.01

$$13649.01 \times 40 = 745960.40$$

Jun 2-8:03 AM

Annuity Problems p509 -517

TI83 -TVM Solver Instructions on p568-573

Hmk.

p.517-519 q. 4,5,9,10,13

May 20-8:42 AM

p 499 #6 \$500 000 - 2yrs from now

450 000 - house

900 biweekly 10.5%  
 $n = 26 \times 2 = 52$   
 $i = 10.5 \div 26 = 0.4038$   
 $i = 0.0040$

$$A = \frac{R[(1+i)^n - 1]}{i}$$

$$= \frac{900[(1+0.0040)^{52} - 1]}{0.0040}$$

$$= \frac{900[1.2307 - 1]}{0.0040}$$

$$= \frac{900[0.2307]}{0.0040}$$

$$= 51908.05$$

May 20-9:48 AM

449 #9

$$R = 100$$

$$i = 0.04/2 = 0.02$$

$$n = 21 \times 2 = 42$$

$$A = \frac{R((1+i)^n - 1)}{i}$$

$$= \frac{100((1.02)^{42} - 1)}{0.02}$$

$$= \frac{100(2.29 - 1)}{0.02}$$

$$= \frac{100(1.29)}{0.02}$$

$$= \frac{129}{0.02} \quad \text{21st}$$

$$= 6450$$

$$A = P_0(1+i)^n$$

$$i = 0.04/2 = 0.02$$

$$n = 4 \times 2 = 8$$

$$P_0 = 6450.22$$

$$= 7599.64$$

May 20-10:03 AM

p499 #11

May 25-9:50 AM

May 31-9:48 AM